

Mitigation best practices



FEMA

Homes built with love — and lots of extra nails

Habitat homes exceed code, but not budget

At a glance

Habitat for Humanity volunteers are building exceptionally strong and safe homes for needy families in southern Brazoria County, Texas. Their 66 homes survived Hurricane Ike with scarcely a missing shingle.

FREEPORT, Texas – Hurricane Ike rudely interrupted Frank Bartolomeo and his Habitat for Humanity team of volunteers just as they were finishing the framing of their latest house in Freeport.

Winds through the coastal town reached higher than 90 mph in the early hours of Sept. 13, with scattered tornadoes. Nearby on the Gulf Coast, storm surge and hurricane-force winds shattered neighborhoods.

Bartolomeo, 77, a retired chemist, and the volunteers evacuated inland until it was safe to return and begin moving downed trees and repairing ripped roofs throughout southern Brazoria County, west of Galveston.

It was only a matter of days, however, before they were back at their labor of love: building Habitat homes. Quickly, they surveyed their inventory.

“We have built 66 homes in southern Brazoria County since 1991,” Bartolomeo said. “We had no more damage to any of them than a few lost shingles here and there and



Volunteers in Southern Brazoria County Habitat for Humanity are finishing up house #66 in Freeport, Texas. They build strong houses to stand up to a storm.

minor water damage in one of the units. We are relieved but not surprised. We have never had structural wind damage or flooding from rising water in any of our Habitat units.”

The secret to their good record is hidden in the details of how and where they choose to build.

“First of all, we go by the city codes on everything,” Bartolomeo said. “The city code officials are a great help to us and keep us updated on all the latest code changes. We are lucky to have a Texas Windstorm Program inspector in our group, and we abide

by everything he says, too.” But they don’t stop with the codes.

“We want to build homes to last,” said Marc Bartolomeo, Frank’s son. “The people who live in these houses are not earning so much, so the homes need to be maintenance-free. They can’t afford damage. They help with the construction, of course, and building to the highest quality gives them a certain sense of pride – and for us, too.”

The volunteers go above and beyond the code so the house will hold together, even in a stiff coastal wind.

Ask Bartolomeo and the southern Brazoria Habitat volunteers about the construction and you will get a whirlwind tour of the framed-in house, top to bottom. Here are the steel braces on all connections and the bolts that anchor the frame to the slab, and over there are the extra-strong roofs, the added bracing over the doors and windows, the precise pattern of nails tying the sheathing to the roof.

“We build to combat the wind shear that could suck up the roof, like an airplane gets lift. It starts with the 2-by-6-inch roof trusses, with glued wood that is stronger than steel, and we tie the roof to the top plate with metal H clips. If you’re going to lift this roof, you would have to lift the whole house,” Frank Bartolomeo said.

“You have to hold the whole house together – tie the roof to the walls and the walls to the cement slab. We also add 4-by-8-foot OSB panels on the outside walls, topped by insulation paneling and the siding.”

“And there’s more,” said volunteer Jim Erskine, the project’s planner. He unrolled a sheaf of his plans, the road maps for each building project. “Here are the plans for fire alarms in every bedroom, all tied together so children can sleep safely. Ground fault inceptor electrical receptacles are put in every bathroom and kitchen.”

Furthermore, the houses are energy-efficient. “We did an analysis of one of our four-bedroom homes a couple of years ago,” Bartolomeo said. “In August, the electric bill was \$47. In February, the gas bill was just \$21.”

They don’t build on the coast or in the one-percent-chance floodplain, period. “At the very least, we build one foot above the 500-year floodplain,” Bartolomeo said. Many building sites are donated, but they don’t accept lowland lots.

Their houses average around 1,200 square feet, and most have three bedrooms. Each costs less than \$45,000 in materials. That money comes from donors such as Dow Chemical, sponsor of unit #66 in Freeport, and fundraisers such as their annual Walk for Habitat.



Sturdy framing demands metal clips, precise nail patterns, and extra bracing.

By and large, the labor is free. “People come from all over to help,” the younger Bartolomeo said. “It’s a homey, friendly group -- a barn raising.” The core group includes 35 people, most of them well into the second half of their lives. When all the pieces such as materials and building inspections come together correctly, they can build a house in 12 days, including painting and landscaping.

“These homes are not fancy but provide excellent quality at an economical price,” Marc Bartolomeo said. “We try to reduce the cost of everything we do.”

For example, his father said, “We have a partnership with the local prison system to pre-frame trusses, doors and window frames. They have a carpentry shop and build the cabinets; we just provide materials. A local shingle company provides donated services, and other local industries donate our coffee, ice and food.”

Habitat holds the mortgage on the house, charges no interest, and requires windstorm and flood insurance on all units.

“We are a rare all-volunteer Habitat affiliate – in construction, in management and even

in our ReStore, which sells used furniture, household goods, and building materials,” said Director Mary Ellen Thomas. “None of the donated funds go for salaries. We build five houses a year.”

Why do they build above the code, with so many extra measures for safety and security? It’s clearly a way of life for these volunteers.

“When I was a kid, if somebody needed a house in our neighborhood, we built it,” Frank Bartolomeo said.

“Our pride is to build a good house that will last longer than a lifetime, at a modest cost,” Jim Erskine said. “We put in all these extra nails and bracing and touches because that is how we want to do it. We have no profit motive.”

“These people we’re building for are more than customers to us,” Marc Bartolomeo said. “They are our friends and neighbors. They work on the houses, just like we do, and in the process they build self esteem and pride. That’s what Habitat is all about – it’s all about building community and friends.”